

IN THE CLAIMS:

Rewrite the pending claims as follows:

1-7. (Canceled)

8. (Previously presented) A method of determining characteristics of a cantilever for use in cantilever-based instruments, comprising:

measuring a drag force acting on a cantilever by monitoring a deflection of the cantilever;

determining a power spectrum of the cantilever;

measuring motion of a base of the cantilever; and

determining one or more characteristics of the cantilever based on the motion of the base, the power spectrum, and the cantilever deflection.

9. (Previously Presented) The method as claimed in claim 8, including applying the drag force by directing a fluid flow over the cantilever; and

the determining characteristics includes determining a fluid flow rate of the fluid flow.

10. (Previously Presented) The method as claimed in claim 9, wherein the determining the fluid flow rate includes determining the fluid flow rate based at least in part on a spring constant and dampening constant of the cantilever.

11. (Previously Presented) The method as claimed in claim 10, wherein applying the drag force includes oscillating the cantilever;

the monitoring the deflection includes monitoring the deflection of the cantilever while oscillating;

the determining characteristics includes determining a hysteresis of the deflection of the cantilever as a function of position of the base of the cantilever.

12. (Previously presented) The method as claimed in claim 8, wherein the monitoring the deflection includes determining a hysteresis of deflection of the cantilever and monitoring the hysteresis; and

the determining characteristics includes determining a distance between the cantilever tip and the surface.

13. (Previously presented) The method as claimed in claim 8, wherein the applying the drag force includes oscillating the cantilever;

the monitoring the deflection includes monitoring the deflection of the cantilever while oscillating the cantilever; and

the determining characteristics includes determining a spring constant based at least in part on the power spectrum associated with the cantilever.

14. (Previously Presented) The method as claimed in claim 13, wherein the monitoring the deflection further includes determining a hysteresis of deflection of the cantilever and monitoring the hysteresis; and

the determining characteristics includes determining a distance between the cantilever tip and the surface based at least in part on the hysteresis.

15-22. (Canceled)

24. (Previously Presented) The method of claim 13, wherein the monitoring the deflection further includes determining a hysteresis of deflection of the cantilever and monitoring the hysteresis; and

the determining characteristics includes determining dissipation between the cantilever tip and the surface in accordance with the hysteresis of deflection of the cantilever.